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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,450	08/05/2003	Naofumi Yamauchi	S004-5084	6710

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EXAMINER	
NGUYEN, THANH NHAN P	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/634,450	YAMAUCHI ET AL.	
	Examiner	Art Unit	
	(Nancy) Thanh-Nhan P Nguyen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 9-28 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 9-28 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 05 August 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. **The following is a quotation of the second paragraph of 35 U.S.C. 112:**

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 13, 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Referring to claim 13, the term "directive diffusion layer" is not well defined, and the term "specific angular range" is unclear. Therefore, for the examination purpose:

The language will be interpreted as scattering light entering thereinto which is within the range of 5-15 degrees to the normal line direction, and transmitting light entering thereinto which is greater or equal to 20 degrees to the normal line direction; wherein the directive diffusion layer is small in transmittance and large in scattering ability from the first viewpoint, and the directive diffusion layer is large in transmittance and small in scattering ability from the second viewpoint, and the amount of diffusion in the none diffusing range is substantially zero.

Claim 14 is interpreted as a liquid crystal display device according to claim 13; wherein the light scattered by the directive diffusion layer has directivity in a specific direction.

2. **The following is a quotation of the first paragraph of 35 U.S.C. 112:**

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13, 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Referring to claim 13, the characteristics of the directive diffusion layer, (see page 16, lines 15-21); and the way to achieve the functions of directive diffusion layer differently from first viewpoint (page 17, lines 4-9), and from the second viewpoint (page 17, lines 13-17) on the same directive diffusion layer that in such a way not be able to one skilled in the art to pertains, or to make and/or use the invention.

Claim 14 is dependent on claim 13.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9, 12, 15, 17-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuroiwa et al U.S Patent Application Publication No. 2002/0089622.

Referring to claim 9, Kuroiwa et al discloses a liquid crystal display device, comprising a liquid crystal panel comprised of a pair of opposing substrates (1031, 1033) and a liquid crystal layer (1035) interposed between the opposing substrates; a polarizer (1020) provided over a first side of the liquid crystal panel; an a reflection-polarizing plate (1050) provided over a second side of the liquid crystal panel opposite the first side to reflect a polarization component of light that is polarized in a specific direction and transmit other polarization components of the light, the reflection-polarizing plate having a reflection axis (1050R, perpendicular) set in the same direction of a polarization direction of light (perpendicular) that exits the liquid crystal panel after a polarization direction of the light has been changed by the liquid crystal layer, [see fig. 11 and 12].

Referring to claim 12, Kuroiwa et al discloses a liquid crystal display device further comprising a diffusion layer (1040) interposed between the liquid crystal panel and the reflection-polarizing plate, [see fig. 11].

Referring to claim 15, any ambient light from front liquid crystal display panel could be considered as a front light unit provided over the polarizer for irradiating the liquid crystal panel with light. Kuroiwa et al discloses the incident light (1100) provided over the polarizer for irradiating the liquid crystal panel, [see fig. 12].

Referring to claim 17, Kuroiwa et al discloses a liquid crystal display device, wherein the polarizer absorbs a specific linear polarization component and transmits other polarization components, [see fig. 12].

Referring to claim 18, Kuroiwa et al discloses a liquid crystal display device, wherein the reflection-polarizing plate reflects a specific linear polarization component and transmits other polarization components, [see fig. 12].

Referring to claim 19, Kuroiwa et al discloses a liquid crystal display device, wherein the polarization direction of light that has reached the liquid crystal panel is changed in an OFF region of the liquid crystal layer in accordance with the twist angle of liquid crystal molecules of the liquid crystal layer, [see paragraph 0005, lines 9-15; and fig. 12].

Referring to claim 20, it is inherently that the incident light that travels through an ON region of the liquid crystal layer maintains the polarization direction of the incident light and exits the liquid crystal panel without a change in polarization direction, and a polarization component of the exit light that matches the reflection axis of the reflection-polarizing plate is reflected by the reflection-polarizing plate, whereas other components of the exit light pass through the reflection-polarizing plate, [see paragraph 0006, lines 34-36].

Claim 21 is met the discussion regarding claims 19-20 rejection above.

Referring to claim 22, Kuroiwa et al discloses that as viewed from the first side, the OFF region of the liquid crystal panel produces a bright display and the ON region of the liquid crystal panel produces a dark display, [see paragraph 0006, lines 31-36; and fig. 12]; it is therefore inherently that as viewed from the second side, the OFF region of the liquid crystal panel produces a dark display and the ON region of the liquid crystal panel produces a bright display.

Referring to claim 23, Kuroiwa et al discloses a liquid crystal display device, wherein the polarization axis of light that has passed through of OFF region of the liquid crystal panel is set parallel to the reflection axis of the reflection-polarizing plate, so that the liquid crystal display device displays a positive display of a total reflection mode when viewed from the first side and a negative display of a total transmission mode when viewed from the second side, [see paragraph 0007, lines 22-28; and fig. 12].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroiwa et al in view of Kawamoto et al U.S. Patent No. 6,809,782.

Referring to claim 10, Kuroiwa et al lacks of disclosing a light-shielding object provided over the reflection-polarizing plate for blocking unwanted light that has entered the liquid crystal panel from reaching the reflection-polarizing plate.

Kawamoto et al U.S. Patent No. 6,809,782 disclosing a light-absorbing layer used for the purpose of absorbing the unnecessary return light and thereby preventing the contrast from decreasing, [see col. 3, lines 65-67; col. 4, lines 1-9]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have a light-shielding object provided over the reflection-polarizing plate for the benefit of absorbing the unnecessary return light and thereby preventing the contrast from decreasing.

Referring to claim 16, it was well known that every liquid crystal display device has to have a driver circuit for supplying driving signal to display arbitrary images. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have a driver circuit in liquid crystal display device for the intended use for the benefit of providing driving signal to display arbitrary images.

Claims 11, 24-28 are rejected under 35 U.S.C 103(a) as being unpatentable over Kuroiwa et al in view of Kawamoto et al as discussed above, and further in view of Akiyama U.S. Patent No. 6,542,208.

Referring to claim 11, Kuroiwa et al lacks of disclosing a liquid crystal display device, further comprising a second polarizer provided over the reflection-polarizing plate and having an absorption axis that is in the same direction as the reflection axis of the reflection-polarizing plate. This implies that the transmission axes of the reflection-polarizing plate and the second polarizer in the same direction.

Akiyama discloses a liquid crystal display device, further comprising a second polarizer (11) provided over the reflection-polarizing plate (9), and the transmission axes of the second polarizer and the reflection-polarizing plate almost correspond with each other, [see col. 2, lines 50-54], for the benefit of being possible to display information on both sides of the liquid crystal display device, and lowering power consumption, [see col. 2, lines 31-32, and 34]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have a second polarizer provided over the reflection-polarizing plate and having an absorption axis that is in the same direction as the reflection axis of the reflection-polarizing plate for the benefit of being possible to display information on both sides of the liquid crystal display device, and lowering power consumption.

Claims 24-25 are met the discussion regarding claims 9, 16, 18 rejection above.

Claim 26 is met the discussion regarding claims 9, 11, 16, 18 rejection above.

Claim 27 is met the discussion regarding claims 9, 12, 16, 18 rejection above.

Claim 28 is met the discussion regarding claims 9, 13, 16, 18 rejection above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kuroiwa et al U.S Patent Application Publication No. 2002/0089622 discloses a liquid crystal display device comprising a reflection-polarizing plate having a reflection axis set in the same direction of a polarization direction of light that exits the liquid crystal display panel after polarization direction of the light has been changed by the liquid crystal layer.

Kawamoto et al U.S. Patent No. 6,809,782 discloses a light-absorbing layer over the reflection-polarizing plate for blocking unwanted light.

Akiyama U.S. Patent No. 6,542,208 discloses a second polarizer provided over the reflection-polarizing plate, and the transmission axes of the second polarizer and the reflection-polarizing plate almost correspond with each other.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on M-F/9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen
Examiner
Art Unit 2871

TN

KENNETH PARKER
PRIMARY EXAMINER